Does Misclassification of Equity Funds Exist? Evidence from Malaysia

Lau, Wee Yeap and Chan, Tze-Haw

Osaka University

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Lau Wee Yeap*
Graduate School of Economics
Osaka University, Japan
bg038lwy@srv.econ.osaka-u.ac.jp

Chan Tze-Haw
Faculty of Business and Law
Multimedia University (Melaka)
thchan@mmu.edu.my

Abstract

Applying the style analysis developed by Sharpe (1988, 1992), this paper investigates the classification of equity funds in Malaysia. A methodology for creating purified mutual fund style indexes is used to verify existing classifications. The paper concludes that an improper classification of funds would not only cause mismatch between investors objectives and funds' profile, it also affects the process of income smoothing in the lifecycle of investors. Besides estimating the possible economic impact due to misclassification, this study highlights the importance of a proper classification system of equity funds in Malaysian context and its implication towards investor's protection.

Keywords: Mutual Fund Classification, Style Analysis, Investor's Protection.

JEL classifications: G18; G24; G30

1. INTRODUCTION

Mutual fund or unit trust fund, has been an investment product created by asset management companies (AMCs)[1], to pool resources from individual investors and invest in a diversified portfolio of securities, with the purpose of adding value to their financial wealth in future period. While the earliest unit trust fund was created in Malaysia around the year 1959, followed by the introduction of subsequent funds in 1966, 1967 and 1977, the development of fund management industry in 60s and 70s had been retarded, due to lack of push and pull factors from institutional settings. The launching of Amanah Saham National (ASN) unit trust funds in 1981 had provided an impetus for new growth in fund management industry[2]. As at 31 December 1997, there were 57 private funds and 27 government-sponsored funds with RM34 billion of assets. In addition, the net asset value of all the unit trust funds constituted about nine percent of the total market capitalization[3]. The entire fund management industry is relatively young by its size, net asset value and product development compared to other developed markets.

In the aftermath of Asian financial crisis in 1997, the market capitalization of Kuala Lumpur Stock Exchange (KLSE) had lost 53.42 percent when comparing the 1997 and 1996 Year Ends[4] **[Figure 1]**. In the same period, the size of the unit trust fund industry had also been reduced from about RM60 billion to RM34 billion, or a loss of 44.01 percent of its net asset value (NAV). It was not until in 2002 where the NAV had managed to resume to about RM54 billion **[Table I]**, but still, thousands of investors suffered financial loss and incapacitated to make important financial decision as their funds would be sold at a loss during this turnaround period if they chose to. Most of NAVs of the funds were below their pre-crisis price[5].

Table 1 Statistics On The Malaysian Unit Trust Industry and Kuala Lumpur Stock Exchange (KLSE)

	1995	1996	1997	1998	1999	2000	2001	2002
Industry								
Units in Circulation (billion units)	31.94	38.94	45.25	46.54	52.63	63.85	71.39	84.53
No. of Accounts ('000)	6,850	7,964	8,263	8,588	8,910	9,582	9,990	10,175
Net Asset Value (RM billion)	47.27	59.96	33.57	38.73	43.26	43.30	47.35	53.70
KLSE								
KLSE Composite Index	995.17	1,237.96	594.44	586.13	812.33	679.64	696.09	646.32
Market Capitalization (RM billion)	565.63	806.77	375.80	374.52	552.69	444.35	464.99	481.62
NAV to Market Capitalization (%)	8.35	7.43	8.93	10.34	7.83	9.74	10.18	11.15

Albeit the existence of non-symmetric relationship between the NAV and the Kuala Lumpur Stock Exchange market capitalization, majority of the studies conducted with respect to the performance measurement of Malaysian unit trust funds have utilized market benchmarks either Kuala Lumpur Composite Index (**KLCI**) or **EMAS** Indices. **[Chua (1985), Ewe(1994), Shamsher and Annuar (1995), Leong and Aw (1997), Ch'ng and Kok (1998)]**. If unit trust funds were to invest in various investment vehicles, it would be more appropriate to examine the performance of mutual funds against a multi-indexed benchmark. Accordingly, not only the difference in terms of performance among the different investment styles can be observed, the possibility of mismatch between the fund objectives and the self-defined investment style by

fund managers could also be detected.

In addition, the present classification system of unit trust funds in Malaysia which is self-determined by the respective fund managers has not been subjected to any external examination. In view of this phenomenon, the first part of this study uses the existing self-defined fund types to infer whether there exists a possible mis-classification of funds. And in second part, creating a system of indices to identify whether the mis-classification of funds does really exist and the inclination of such mis-classified funds.

The rest of the paper is arranged as follow: Section two discusses the prior studies on style analysis and is followed by previous research on Malaysian mutual funds. Section three describes the data. Section four explains the methodology. Section five reports the results and the final section concludes the study.

2. LITERATURE REVIEW

2.1 Equity Style Classification

With the advent of the concept of a fund's 'effective asset mix' and 'attribution analysis' by Sharpe (1988, 1992), there have been a number of proponents for style analysis with each of them demonstrated usefulness of this analysis with respect to equity style classification [Tierney & Winston (1991), Bailey (1992), Bailey & Tierney (1993), Coggin (1998)]. This analysis has also been used to link the investment returns and asset allocation policies in some of recent research [Brinson et. al. (1991), Ibbotson and Kaplan (2000)].

Tierney and Winston (1991) supported the use of return-based style analysis to analyze the asset mix of a portfolio manager. Using a four equity style portfolios produced by Wilshire Asset Management as generic portfolio for style-point analysis, they concluded that creation of a custom benchmark is the best way to address the style issue. **Christopherson (1995)** linked the crucial relationship among past return patterns, portfolio characteristics and future returns and pointed out that the reason for studying investment style was not so much concerned with the past returns, but to anticipate future returns. **TerHorst, Nijman and DeRoon (2004)** stated that while the estimated portfolio may indeed differs from actual portfolio holdings, but "…if the aim is to predict future fund returns, factors exposures seem to be more relevant than actual portfolio holdings, and return-style based style analysis performs better than holding-based style-analysis".[6]

It is inevitable for the problem of asymmetric information between fund manager and investors to exist as timely mutual fund holdings are not readily updated even in the developed market as discussed by **Lucas and Reipe (1996).** Furthermore, they identified style analysis to be a useful tool for investors to comprehend a trust fund's investment policy and objective. In a number of subsequent studies, in the course of identifying a system of classification for equity trust funds, the researchers have also presented the evidence of mis-classifications if self-reported investment objectives were to be compared to the estimated styles **[diBartolomeo and Witkowski (1997), Brown and Goetzmann (1997), Kim, Shukla and Tomas (1999)].**

2.2 Mutual Funds in Malaysia

Chua (1985) with exclusive samples of 12 Malaysian mutual funds between 1974 to 1984, concluded that funds outperformed the market proxy and performance was fairly consistent over time. High performance funds tend to relate to those with low expense ratio, low asset size and low portfolio turnover.

In a subsequent study, Ewe (1994) utilized a sample of 37 funds and a period between 1988-1992, with test of performance by Jensen's Alpha Measure and Sharpe Index Measure, reported that while risk adjusted returns overall were less than those of stock market implying that the managers had low forecasting ability. Shamsher and Annuar (1995) found a similar result with Ewe (1994), where the returns on investment in 54 funds for the period 1988 – 1992 were below risk-free and market returns. Besides the performance is inconsistent over time, the degree of diversification of the portfolios was below expectation.

In addition, the studies conducted with respect to the performance measurement of Malaysian unit trust funds have utilized market benchmarks such as Kuala Lumpur Composite Index (KLCI) and EMAS Index [Leong and Aw (1997), Ch'ng and Kok (1998)]. These researchers have advocated for more than one kind of market benchmarks for performance measurement. All the prior studies before 1997 have concentrated on using the broad market index i.e. KLCI as the single yardstick.

In another study by Shamsher and Annuar (2001), using a sample size of 41 non-government based mutual funds from 1995 to 1999, they reported that based on risk-adjusted returns basis, both active and passive funds performed equally well, but underperformed the market portfolio. They concluded that choice of active or passive funds was irrelevant given equal performance, but growth funds should be prioritized over income if investors preferred actively managed funds over passive funds and vice versa.

In one of most recent studies, using a sample of 42 unit trust funds from February 1996 to January 2001, and an investment universe represented by eight asset classes, Lau (2002) reported that on the degree of selection, all funds irrespective of styles exhibit different degrees of active management. On the degree of style, it is surprising to note that the level of passive management for index funds is indistinguishable from other types of fund. This study highlights the importance of investment policy in Malaysian context and its implication towards investors' protection.

3. DATA

3.1 Data Selection

The data comprises of 60-month end bid (buy) price of equity funds listed on daily newspapers. Bid price is selected as the measure of a unit trust fund's performance as it reflects the actual amount of funds a fund manager has to invest/work with.

Table II shows the 45 funds of which could be divided into seven groups of fund types or categories[7].

Table II Composition of Sample Data

Classification of funds	No. of funds	Percentage
Income	27	60.0
Growth	8	17.8
Balanced	4	8.9
Small Companies	3	6.7
Index	2	4.4
Federal	1	2.2
Total	45	100

3.2 Data Description

As the methodology of style analysis requires at least sixty consecutive monthly return of funds, a sample period from December 1996 through December 2001 is chosen.

3.3 Dependent Variables

The continuous compounding return[8] for the fund is used as the dependent variable. It is calculated as

$$R_{j,t} = \ln\left(\frac{P_{j,t}}{P_{j,t-1}}\right)$$

$$R_{m,t} = \ln\left(\frac{I_{m,t}}{I_{m,t-1}}\right)$$

$$R_{f,t} = \ln(1 + r_{f,t})$$

where:

$R_{j,t}$ = the continuous compounded return for j unit trust fund at time t
$R_{m,t}$ = the continuous compounded return for m benchmark portfolio for the month t
$R_{f,t}$ = the continuous compounding risk free rate of interest for month t
$P_{j,t}$ = the net asset value for j unit trust fund[9] at time t
$I_{m,t}$ = the asset class index at the end of month t
$r_{f,t}$ = the yield to maturity of the 90-day TBill for month t as the proxy for the risk free rate of interest
ln = the natural logarithm

3.4 Independent Variables

Table III Asset Class Indices

Class Name	Description
Large Capitalization Stocks	Represented by EMAS Index, an all-share index covers investment in equities listed at KLSE main board.
Medium Capitalization Stocks	Represented by Second Board Index, an all-share index covers investment in equities and securities listed at KLSE's second board.
Treasury Product	Represented by Treasury Bill. T-Bill of three-month rate is used. A proxy for treasury products.
Time Deposit	A proxy for short-term Ringgit deposit in financial institutions. Time deposit of three-month rate is used.
Money-at-Call	A proxy for short-term Ringgit money market instruments Represented by Kuala Lumpur Inter-bank Offer Rate (KLIBOR). KLIBOR 1-month deposit rate is used.
Government Bonds	Represented by MGS-bond all tenure Index#, which account for MGS with value above RM100 million on issues for maturity greater than one year.
Corporate Bonds	Represented by RAM Listed Bond Index, which account for all bonds and loan stocks listed on KLSE a term to maturity of more than one year. A proxy for listed private debt securities.

Source of data : Rating Agency Malaysia (RAM)-Quantshop.

Table IV Mean, Standard Deviation, Correlation Coefficients between The Returns of Asset Classes

Asset Class	Mean	Std Deviation	Correlation with Emas	SB	Tbill	FD	KLIBOR	MGS	LBI
Emas	−0.53	12.14	1.00						
SB	−1.02	17.48	0.83	1.00					
Tbill	−0.59	12.16	0.01	−0.01	1.00				
FD	−1.07	6.63	−0.43	−0.30	−0.06	1.00			
KLIBOR	−1.12	7.84	−0.30	−0.22	0.35	0.62	1.00		
MGS	0.80	1.25	0.19	0.20	−0.63	−0.18	−0.32	1.00	
LBI	2.07	13.83	0.15	0.14	0.07	−0.04	0.01	0.02	1.00

As stated by Sharpe (1992) "…while not strictly necessary, it is desirable that such asset classes should be 1) mutually exclusive, 2)exhaustive and 3) have returns that 'differ', …and the asset classes returns should either have low correlations with one another or, in cases in which correlations are high different standard deviations". While style analysis in equation (1) has attempted to capture the investment universe i.e. to include all possible investment products in the model, careful consideration has been taken to ensure that asset classes chosen are not correlated to one another. However, as shown in table IV, it is found that one pair of correlation

coefficients i.e. the second board[10] and EMAS[11], has rather high correlation of 0.83. An examination on their standard deviations in table IV reveals that their respective values are different i.e. the standard deviation of EMAS Index is 12.14 percent while second board is 17.48. As such, this fulfills the above requirement.

4. METHODOLOGY

4.1 Return-based Style Analysis

As in Sharpe (1992), this study initially introduces the generic factor model in equation (1) before adapting it into style analysis in equation (2).

$$\tilde{R}_i = \left[b_{i1}\tilde{F}_1 + b_{i2}\tilde{F}_2 + b_{ik}\tilde{F}_k + ... + b_{in}\tilde{F}_n \right] + \tilde{e}_i \qquad \textbf{(1)}$$

where:

$\tilde{R}_i$ = return of fund i
$\tilde{F}_k$ = return of factor k for fund i
b_{ik} = sensitivity of fund i to factor k
$\tilde{e}_i$ = non-factor return of asset i of mean zero with the assumption that the non-factor returns are uncorrelated $\sigma_{eiej}=0$

Style Analysis is the use of constrained quadratic programming for solving the asset allocation problem. This approach incorporates two specific constraints: first, the coefficients must sum to 100 percent and second, coefficients must be positive. Negative coefficients can be interpreted as short positions in asset classes. This type of strategy is rarely used by the funds examined, and prohibiting these coefficients provides better, more usable results[12].

The factor is rewrited as

$$\tilde{e}_i = \tilde{R}_i - [b_{i1}\tilde{F}_1 + b_{i2}\tilde{F}_2 + b_{ik}\tilde{F}_k + ... + b_{in}\tilde{F}_n] \qquad \textbf{(2)}$$

where:

$\tilde{e}_i$ = selection[13]
$\tilde{R}_i$ = return of fund i
$\tilde{F}_k$ = return of factor k for fund i
b_{ik} = sensitivity of fund i to factor k

To obtain the style, minimize variance of residual return $\tilde{e}_i$

Subject to : $\sum_{j=1}^{n} b_{ik} = 1$ for any fund i and asset class k

and $0 < b_{ik} < 1$

With the two specific constraints, the coefficients tabulated in equation (2) will resemble the weights within a portfolio and conveniently displayed as part of the portfolio. The asset class indices in table III which represents the factors in equation (1) and the sensitivity of each of the fund's return series to each of the asset class index factors is used to construct a passive benchmark portfolio return series for performance measurement. In other words, the return of funds will be measured against the style-based, passive benchmark contained as second, bracketed terms in the right hand side of equation (2).

Upon obtaining results from the quadratic programming in equation (2), the proportion of variance 'explained' by the selected asset classes, for fund *i* can be obtained as below:

$$R^2 = 1 - \frac{Var(\tilde{e})}{Var(\tilde{R})} \qquad \textbf{(3)}$$

The second term of the right-hand side of the above equation represents the proportion of variance 'unexplained" or due to active management (selection). In other words, the return of unit trust fund is decomposed into return on a set of asset classes and residual return. The former is attributed to **s*tyle*** and represented by the R-square while the latter is attributed to ***selection.***

In order to take into account the added (or subtracted) value provided by a fund i.e. its benchmark and the added risk, the monthly mean selection return is divided by the standard deviation of monthly selection returns. This calculation gives a Monthly Selection Sharpe Ratio (MSSR) as stated in equation (5).

The Selection Sharpe Ratio (SelSR) which denotes the valued added (subtracted) through active management per unit of added risk is the annualized MSSR, obtained by multiplying MSSR with the square root of 12 as shown in equation (6).

$$\text{Monthly Selection Sharpe ratio (MSSR)} = \frac{E(\tilde{e}_i)}{\sigma_{\tilde{e}_i}} \qquad \textbf{(5)}$$

$$\text{Selection Sharpe Ratio } \textbf{(SelSR)} = \text{MSSR x } \sqrt{12} \qquad \textbf{(6)}$$

The monthly mean selection returns can be measured for its statistical significance using a t-statistic[14]. The null hypothesis is stated as selection return equals to zero.

$$t = \frac{(r_s - \mu)}{s/\sqrt{n}}$$

where:

r_s = the monthly mean selection returns

μ = zero, the null hypothesis

s = the standard deviation of monthly selection return

n = the number of observations

4.2 Classification System

In part two of our analysis, a minimum-variance portfolio consisting of the six indices, each representing a fund class is created. The portfolio is used to replicate the return pattern during the time period under investigation. Each index is an equal-weighted series of returns of all funds in a category.

In subsequent step, a multi-indexed model is created using the six indices

$$R_{it} = \sum_{j=1}^{6} a_j X_{jt} + e_t \qquad \textbf{(7)}$$

where:

R_{it} = the return on fund i in period t

a_j = coefficient on index j

X_{jt} = return on index j in period t

e_t = error term in period t

Intuitively, the a's are the measures of the relative influence of the style index on the fund's past behaviour. And mathematically,

$0 < a_j < 1$

and

$$\sum_{j=1}^{6} a_j = 1$$

5. RESULTS

5.1 Return-based style analysis

The results of return-based or strong-form style analysis are shown in table V. Across the different fund types, it could be observed that both income and growth funds have substantial

Table V Results of the Estimation : The Degree of Styles and Selection, Asset Classes Holdings by Different Funds and Selection Sharpe Ratio

No	Fund	Style	Selection	Large-Cap	Medium-Cap	T-Bills	Time Deposit	Money-at-call	Govt Bonds	Corp Bonds	Monthly Mean Sel Return(%)	t-Statistic (Sel Return)	Monthly Sel Sharpe Ratio	Selection Sharpe Ratio
1	Affin Equity	86.82	13.18	90.71	0.00	4.80	0.00	3.72	0.00	0.78	0.32	0.51	0.07	0.23
2	AM Total Return	61.21	38.79	72.43	0.00	7.23	0.00	0.00	11.65	8.70	0.09	0.09	0.01	0.04
3	M Berjaya	92.92	7.08	92.36	0.00	5.53	0.00	0.00	0.00	2.11	0.61	1.19	0.15	0.53
4	M Investment	91.96	8.04	88.22	0.00	2.26	0.00	0.00	9.20	0.32	0.16	0.38	0.05	0.17
5	ASM 3	57.46	42.54	58.45	8.70	0.00	0.00	4.73	28.12	0.00	-0.83	-1.91 **	-0.25	-0.85
6	ASM 4	34.35	65.65	64.30	9.51	0.00	0.00	3.77	22.43	0.00	-0.88	-1.33 ***	-0.17	-0.59
7	ASM 5	74.78	25.22	54.71	18.09	0.00	0.00	11.74	15.46	0.00	-0.56	-1.21	-0.16	-0.54
8	ASM 6	45.59	54.41	46.15	9.17	0.00	0.00	1.72	42.09	0.88	-0.84	-1.84 *	-0.24	-0.82
9	ASM 7	67.39	32.61	46.19	12.17	0.00	0.00	1.21	40.43	0.00	-0.77	-2.18 **	-0.28	-0.97
10	ASM 8	43.20	56.80	56.87	25.64	0.00	0.00	17.49	0.00	0.00	-0.87	-1.13	-0.15	-0.51
11	ASM 10	91.99	8.01	97.21	2.79	0.00	0.00	0.00	0.00	0.00	-0.33	-0.85	-0.11	-0.38
12	ASM 11	73.58	26.42	84.01	9.26	0.00	0.00	5.38	1.35	0.00	-0.25	-0.33	-0.04	-0.15
13	ASM fpf	87.14	12.86	90.27	5.42	2.97	0.00	0.00	0.00	1.34	-0.57	-1.41	-0.18	-0.63
14	ASM premier	81.03	18.97	64.80	11.42	0.00	0.00	8.18	15.61	0.00	-0.57	-1.47	-0.19	-0.66
15	ASM ptnb	84.89	15.11	83.08	8.05	0.00	0.00	1.73	7.14	0.00	-0.41	-0.87	-0.11	-0.39
16	CT Trust	79.30	20.70	70.40	9.97	0.00	0.00	0.00	19.63	0.00	-0.51	-1.09	-0.14	-0.49
17	CT Prime	87.39	12.61	89.93	10.07	0.00	0.00	0.00	0.00	0.00	-0.41	-0.82	-0.11	-0.37
18	Mayban UT	78.57	21.43	52.30	3.00	0.79	0.00	8.08	33.68	2.15	-0.61	-2.13 **	-0.27	-0.95
19	Pacific Premier	81.50	18.50	54.24	12.19	0.00	0.00	1.06	27.60	4.91	-0.30	-0.69	-0.09	-0.31
20	BSN	75.96	24.04	77.87	4.58	17.49	0.00	0.00	0.06	0.00	-0.18	-0.26	-0.03	-0.12
21	Public Savings	61.19	38.81	19.39	18.09	0.00	5.54	0.00	55.47	1.51	-0.55	-1.54	-0.20	-0.69
22	Public Growth	61.20	38.80	54.18	0.00	7.73	9.58	0.00	28.51	0.00	-0.53	-1.19	-0.15	-0.53
23	Public Industry	49.00	51.00	47.24	2.61	0.00	11.84	0.00	31.67	6.64	-0.60	-1.19	-0.15	-0.53
24	Public Regular Savings	44.29	55.71	40.03	0.00	0.00	5.92	3.94	50.11	0.00	-0.64	-1.53	-0.20	-0.68
25	RHB Dynamic	87.96	12.04	62.38	0.00	0.00	3.42	0.00	34.20	0.00	-0.11	-0.33	-0.04	-0.15
26	Premium Capital	75.71	24.30	64.73	2.08	1.58	0.00	5.49	24.92	1.20	-0.08	-0.15	-0.02	-0.07
27	TA Growth	75.26	24.74	57.13	9.55	2.12	7.98	0.00	23.20	0.02	-0.35	-0.71	-0.09	-0.32
	Income Fund	71.54	28.46	65.91	7.12	1.94	1.64	2.90	19.35	1.13	-0.39			
1	ASM dana Growth	71.61	28.39	55.35	9.04	0.00	10.11	10.13	15.37	0.00	-0.09	-0.15	-0.02	-0.07
2	SBB Double Growth	76.51	23.49	66.72	0.00	0.00	5.35	0.00	27.93	0.00	0.06	0.11	0.01	0.05
3	SSB High Growth	59.49	40.51	67.13	0.00	0.00	18.07	0.00	14.79	0.00	0.63	0.60	0.08	0.27
4	HLG Growth	72.93	27.07	55.54	6.59	0.00	1.88	0.94	34.99	0.06	-0.03	-0.06	-0.01	-0.02
5	MBF Growth	84.30	15.70	85.10	8.98	0.00	0.00	0.00	5.93	0.00	-0.25	-0.45	-0.06	-0.20
6	Public Aggressive Growt	68.89	31.11	57.08	1.27	0.00	3.86	0.00	37.79	0.00	-0.45	-0.99	-0.13	-0.44
7	RHB Capital	88.30	11.70	67.89	0.00	0.00	0.00	1.00	31.12	0.00	-0.23	-0.66	-0.09	-0.30
8	OSK-UOB Equity	78.45	21.55	64.79	0.52	0.00	5.98	0.00	28.71	0.00	-0.35	-0.82	-0.11	-0.37
	Growth Fund	75.06	24.94	64.95	3.30	0.00	5.66	1.51	24.58	0.01	-0.09			
1	SBB Savings Fund	67.84	32.16	47.59	0.00	0.00	7.63	0.00	44.78	0.00	-0.22	-0.50	-0.07	-0.23
2	Mayban Balanced	49.82	50.18	29.76	0.00	0.30	21.47	0.00	48.47	0.00	-0.44	-1.41	-0.18	-0.63
3	MBF Balanced	82.99	17.01	94.37	0.00	0.00	0.00	1.24	2.91	1.48	-0.36	-0.66	-0.08	-0.29
4	Public Balanced	58.64	41.36	35.90	1.15	0.00	0.00	2.68	60.27	0.00	-0.64	-2.10 **	-0.27	-0.94
	Balanced Fund	64.82	35.18	51.91	0.29	0.08	7.28	0.98	39.11	0.37	-0.41			
1	M Progress	87.83	12.17	55.64	12.37	1.74	4.96	0.00	25.29	0.00	0.25	0.55	0.07	0.25
2	M Equity #	93.82	6.18	90.90	0.00	9.10	0.00	0.00	0.00	0.00	0.95	1.79 *	0.23	0.81
3	SBB Emerging Co	56.15	43.85	32.90	20.83	0.00	5.29	0.00	40.98	0.00	0.07	0.09	0.01	0.04
	Small Companies Fund	79.27	20.73	59.81	11.07	3.61	3.42	0.00	22.09	0.00	0.42			
1	ASM 2	78.25	21.75	70.26	1.87	0.00	0.00	0.89	26.98	0.00	-0.57	-1.41	-0.18	-0.63
2	Public Index	76.95	23.05	51.36	0.00	0.00	2.69	0.00	45.94	0.00	-0.47	-1.44	-0.19	-0.64
	Index Fund	77.60	22.40	60.81	0.94	0.00	1.35	0.45	36.46	0.00	-0.52			
	ASN	77.78	22.22	62.47	1.63	9.20	0.00	0.00	25.79	0.91	-0.47	-1.18	-0.15	-0.53
1	Federal Fund	77.78	22.22	62.47	1.63	9.20	0.00	0.00	25.79	0.91	-0.47			

Note: ***, ** and * denote level of significance at 1, 5 and 10 percent level respectively.

the number of return series of M Equity fund is 58 (From December 1996 to October 2001).

holdings in large-cap stocks (about 65-66 percent), followed by federal fund index funds and

small companies funds (about 60-63 percent). Balanced funds hold the least in large –cap stocks (about 52 percent). This finding concurs with the notion that Malaysian growth and index fund managers hold large-cap stocks in anticipation of capital gains. On the other hand, federal fund managers hold large-cap stocks as most of the government linked companies are mainly listed in the main board.

Among the fund types, as the name implied, small companies funds hold the most medium-cap stocks of 11 percent, followed by income funds (about 7 percent) and growth funds (about 3 percent). In addition to the notion of relatively risky asset class, medium-cap stocks are often considered as second-line stocks that are more speculative in nature. This type of stocks has the tendency to follow the sentiments of the main board. As such, it could be observed that medium-cap stocks are not the main focus of growth and index fund managers.

Overall, the best performance of all the funds during this period being small companies funds which have the highest monthly mean selection return of 0.42 percent, followed by growth funds (-0.09 percent), income funds (-0.39 percent), balanced funds (-0.41 percent), federal fund (-0.47 percent) and index funds (-0.52 percent).

It is also interesting to note that the degree of styles of index fund i.e. 77.60 percent is not dissimilar with other fund types such as small company funds (around 79 percent), income fund (around 72 percent) and growth funds (around 75 percent). It would be expected that index funds to have a relatively high degree of style and lower degree of selection given the nature of the funds. This phenomenon could be further investigated to find out if there would be any mis-classification of funds in the sample.

Of all the 45 funds in the sample, two funds with a relative high selection Sharpe ratio i.e. 0.53 for M Berjaya and 0.81 for M Equity funds, have some interesting characteristics. Both have substantial large-cap stocks (around 90 percent) and T-bills (around 5 – 10 percent). Investing in T-bills provides for a consistent income as the buffer during economic uncertainty, while investing in the large-cap stocks provides for unexpected capital gain should the market has short recoveries in the business cycle.

6. CONCLUSION

Through the analysis, the degree of styles has indicated a possible trend of mis-classification as the degree of styles for index funds do not differ from the other fund types. On a contrary note, it could be said that the styles of other fund types are converging towards index funds. Albeit that most of funds do not outperform the passive style benchmarks, the style analysis has enhanced the understanding of various performance measurements. In addition, by understanding the estimated style of funds, investors could plan their optimal portfolio mix[15], rebalancing or switching to funds that fulfill their investment objectives.

However, there is a greater responsibility of asset management companies to provide a full disclosure, if not, an up-to-date information of their asset allocation in annual reports and fund prospectuses. The spate of new funds being launched in the recent years by the Malaysian fund management industry, and the lessons from the Asian financial crisis, pose a greater need for Malaysian fund managers and the regulator -- Securities Commission (SC), likewise their counterparts in the developed markets, to place a greater focus on equity style management and risk management to benefit the unit trust investors. In view of eventful financial liberalization of Malaysian capital market by 2007 within the context of Asean Free Trade Area (AFTA), it certainly takes a concerted effort from all the market participants to enhance the unit trust industry towards its long-term objectives of having 40 percent of market capitalization in Malaysian capital market by the year 2020.[16]

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End Notes

[1] AMCs are like plan sponsors mentioned in the literature of U.S. mutual funds.

[2] Refer Shamser and Annuar (1995).

[3] Refer p. 29, Appendix E in Understanding Malaysian Unit Trusts, FMUTM, June 1998.

[4] See p. 15 of the Malaysia Unit Trust Directory (2001) and the website of FMUTM, www.fmutm.com.my (as accessed in March 2004).

[5] Refer The edge 13 January 2003. p. 37.

[6] Refer TerHorst et al (2004) p. 30, para 4.

[7] In this study, the self-classified fund type as listed in the website (as accessed in March 2004) of the Federation of Malaysian Unit Trust Managers (FMUTM) at www.fmutm.com.my are used.

[8] Refer Brooks (2002), pp. 6-8. Also refer Gourieroux and Jasiak (2001), p. 12 and Jensen (1968).

[9] The selling price for the funds is usually the Net Asset Value (NAV) of the funds except one fund in the sample, where the buying price is the NAV.

[10] The companies listed in second board must have a minimum paid-up capital of RM40 million with stock of RM1 per share. The board was launched in 1991, an all-share index which is weighted by market capitalization with base date on 31 December 1990. For other listing requirements, refer Kuala Lumpur Stock Exchange (2001) information handbook. p. 56.

[11] EMAS Index is the abbreviation of Exchange Main Board All-Shares Index. The board is weighted by market capitalization, with base date on 1 January 1994 and an assigned index value of 100, and a total of 269 companies listed on base date.

[12] The positivity constraint of style analysis here appears to have no contradiction to the application to Malaysian mutual fund industry as short-selling is not an approved practice.

[13] selection = fund return – style benchmark return.

[14] Refer Sharpe (1992) and Lucas and Riepe (1996).

[15] Refer Lucas and Riepe (1996) for discussion on how investors could design an optimal mix of holdings of different asset classes once the estimated styles of their funds are known.

[16] Refer the Star dated 6 December 2001. The article written by Daljit Dhesi (2001) entitled "Unit trust sector targeted to hit 40% KLSE market cap by 2020".

Appendix 1 : List of Unit Trust Funds in the Sample

No.	Plan Sponsors	Fund	Launch Date	Fund Type	Approved Units (Mil)
1	Affin Trust	Affin Equity	93.04.29	Income	300
2	ASNB	ASN	81.04.20	Federal	2500
3	Arab Malaysian	AM First	89.01.10	Income	500
4	Asia Unit Trust	M Progress	70.06.01	Small Companies	300
5	Asia Unit Trust	M Berjaya	76.05.05	Income	50
6	Asia Unit Trust	M Equity	82.02.20	Small Companies	50
7	Asia Unit Trust	M Investment	96.07.18	Income	300
8	Amanah Saham Mara	ASM 2 Index	69.02.19	Index	20
9	Amanah Saham Mara	ASM 3	69.11.01	Income	20
10	Amanah Saham Mara	ASM 4	70.02.02	Income	20
11	Amanah Saham Mara	ASM 5	71.09.03	Income	20
12	Amanah Saham Mara	ASM 6	72.05.05	Income	20
13	Amanah Saham Mara	ASM 7	72.12.28	Income	20
14	Amanah Saham Mara	ASM Growth	72.12.28	Growth	20
15	Amanah Saham Mara	ASM 8	75.07.17	Income	20
16	Amanah Saham Mara	ASM 10	78.10.24	Income	20
17	Amanah Saham Mara	ASM 11	79.10.28	Income	20
18	Amanah Saham Mara	ASM fpf	92.04.20	Income	350
19	Amanah Saham Mara	ASM premier	95.06.12	Income	350
20	Amanah Saham Mara	ASM ptnb	95.08.28	Income	50
21	BHLB	Double Growth	91.05.15	Growth	550
22	BHLB	Emerging Companies	94.05.10	Small Companies	700
23	BHLB	Savings Fund	95.08.05	Balanced	500
24	BHLB	High Growth Fund	95.09.28	Growth	1000
25	Commerce Trust	CT Trust	89.08.19	Income	300
26	Commerce Trust	CT Prime	91.05.14	Income	300
27	HLG	HLG Growth	95.09.08	Growth	300
28	Mayban	Mayban Unit Trust	92.03.26	Income	500
29	Mayban	Mayban Balanced	94.09.19	Balanced	1000
30	MBF	MBF Balanced	91.05.01	Balanced	750
31	MBF	MBF Growth	95.06.01	Growth	300
32	Pacific Mutual	Pacific Premier	95.08.10	Income	500
33	BSN	BSN	95.01.12	Income	500
34	Public Mutual	Public Savings	81.03.29	Income	500
35	Public Mutual	Public Growth	84.12.11	Income	1000
36	Public Mutual	Public Index	92.03.02	Index	500
37	Public Mutual	Public Industry	93.11.18	Income	1000
38	Public Mutual	Public Aggressive Growth	94.04.25	Growth	500
39	Public Mutual	Public Regular Savings	94.04.25	Income	1500
40	Public Mutual	Public Balanced	92.09.15	Balanced	1000
41	RHB	RHB Dynamic	92.09.15	Income	750
42	RHB	RHB Capital	95.04.12	Growth	500
3	SBB	Premium Capital	95.08.01	Income	500
44	OSK-UOB	OSK-UOB Equity	96.08.08	Growth	750
45	TA Unit Trust	TA Growth	96.07.01	Income	350

Source of data : http://www.fmutm.com.my (accessed in March 2004)